

REMARKS

Claims 1-2 and 4-15 remain in this application. Claims 9, 11 and 14 are withdrawn. Claims 1-2 and 4-15 are currently amended.

The currently amended claims further clarify the intended subject matter, correct antecedent basis and address matters of form. Support for the amendments can be found in the specification and original claims as filed. No new matter has been added.

Because the amendments should not necessitate any further search, Applicants respectfully note that a next subsequent Office Action containing a rejection based on any newly cited prior art reference cannot be made final.

CLAIM REJECTIONS - 35 USC § 103

At page 3, the Office Action rejects claims 1-2, 4-8, 10, 12 and 13 under 35 U.S.C. § 103(a) as being unpatentable over KARL et al. (US 2005/0132500) and/or SKOVMAND (WO 01/37662) in view of IRD "Synergy between insecticide and repellent to combat malaria-carrying mosquitoes"). Applicants respectfully traverse the rejection.

The claimed subject matter is directed to compositions comprising non-pyrethroid insecticide in combination with an insect repellent. In the combination, the concentration of the non-pyrethroid insecticide is lower than its LC100 when it is

used alone, and the concentration of the insect repellent is lower than the concentration of the insect repellent procuring a maximum repellent effect when it is used alone. The presently claimed subject matter is also directed to fabrics, mosquito nets and clothes which comprise the insecticide composition.

The Office Action contends that KARL discloses an insecticide composition comprising a mixture of at least one insecticide and/or one repellent, the insecticide being an organophosphorous compound and the repellent being selected from compounds such as DEET. The Office also contends that KARL teaches impregnation of textile material with the composition.

The Office Action further contends that SKOVMAND teaches impregnated netting or fabrics for insect repellence comprising an insecticide compound (organophosphorous) and/or repellent such as DEET.

INCORRECT REFERENCE DATE

The Office Action recognizes the KARL and SKOVMAND fail to teach or suggest that the combination of a non-pyrethroid insecticide and an insect repellent could have synergistic effects and that a combination composition would be effective having much lower concentrations of insecticide and repellent components than when each was used alone. The Office Action relies on the IRD reference for teaching this synergy. Applicants respectfully disagree with this conclusion.

The Office Action located a webpage on the IRD website which contains content related to "Synergy between insecticide and repellent to combat malaria-carrying mosquitoes" with an alleged date listed on the webpage as "January 2001". This webpage, however, is in error. In fact, the January 2001 date listed on the webpage is incorrect and has since been corrected to "January 2007".

Applicants provide herein documentary evidence to prove that the IRD webpage incorrectly recited the January 2001 date and that any knowledge of insecticide and repellent synergy that could be relied upon by the Office does not carry a reference date of January 2001.

The information listed on the reference webpage was garnered from the IRD 2007 Annual Report. A copy of the Annual Report is included in the Appendix, and the relevant portion is on page 25. Here, the identical information is reported and the source is listed as "Publication\ Malaria Journal (2007)".

The publication being referred to is Pennetier et al. Malaria Journal (2007), 6:38. A copy of the publication is included in the Appendix and indicates that the manuscript was received on November 21, 2006 and published on March 29, 2007.

Applicants also provide a signed declaration from Marie-Noelle Favier, Director of IRD communications concerning the typographical error that was contained within the website page noted in the Office Action.

Finally, Applicants provide in the Appendix a copy of the IRD website as currently available (date, March 14, 2011).
<http://en.ird.fr/the-research/the-research-projects/synergy-between-insecticide-and-repellent-to-combat-malaria-carrying-mosquitoes>.

As can be seen in the current website, the date relied upon by the Office has been corrected to January 2007. Thus, Applicants state the position that the January 2001 date relied upon by the Office as a reference date for their copy of the IRD reference is incorrect.

The present application is a 371 National Stage of PCT/FR05/02262 filed on February 4, 2005, and further claims the benefit of US Application 60/541,930 filed on February 6, 2004. Thus, the IRD reference must be excluded as evidence of prior art and cannot be taken into account in this rejection.

KARL et al. and SKOVMAND

In regard to the remaining references, KARL discloses insecticide compositions for application to a textile or plastic material. The main aim is to provide compositions that are not washed out and in which bioavailability of the insecticide for killing insects is maintained after multiple washes. KARL discloses the insecticides and repellents in a concentration of 0.5 to 60% (e.g., paragraphs [0149] and [0308]). The netting material is treated with 25 to 200 mg/m² of alpha-cypermethrin (Example, page 15),

which is a pyrethroid insecticide. The bioassay results presented in Table 2 (page 17) clearly show 100% mortality after 24 hour exposure of mosquitoes to composition A17, which contains alphacypermethrin at 200mg/mm². Finally, no repellent is present in the specific compositions disclosed in KARL.

Thus, KARL fails to teach or suggest a concentration of insecticide below lethal concentrations (below LC100) or a concentration of repellent below maximum repellent effect.

SKOVMAND provides pesticidal or pesticidal-repellent compositions for impregnation of fabrics comprising an insecticide and/or a repellent. The insecticide is chosen from a long list of possible compounds (see, pages 8-11) and the repellent is chosen also from a long list of compounds (see, page 22). The amount of pesticide is between 0.001 and 5% and the amount of repellent is between 0.001 to 1% of the dry weight of the fabric (see, page 13, lines 11-16 and 33-35).

Examples of compositions presented in SKOVMAND include 0.20 to 0.50 g of a pyrethroid insecticide such as alphacypermethrin, deltamethrin, and lambdacyhalothrin. (see, compositions pages 28, 33 and 34). Again, as in KARL, no repellent is present in the specific compositions disclosed by SKOVMAND.

Both KARL and SKOVMAND disclose the use of lethal doses of pyrethroid insecticides in their compositions. The references fail to teach or suggest any combination of insecticide and repellent below lethal concentration.

As detailed in the present specification, the subject matter aims to retain maximal insecticide activity in fabric to give the highest pesticidal effect (see, page 30, Table 4). One aspect is "the mixture of the wash resistant agents" (see, page 32, line 10). The combination of paraffinic oil-metal salt complex with fluoro-polycarbon impregnation of fabrics provide a "very effective wash-resistance and allow the pyrethroid to migrate" (see, page 32, lines 10-16) from the coating to the surface of the film with a sustained release of the active ingredients, thus providing long term protection. The mosquitoes' mortality at 24 hours is the most important criteria to evaluate the quality of the process disclosed in the application. Thus, one of ordinary skill in the art necessarily use that lethal concentration of insecticide to achieve the best effectiveness.

It appears that the Office Action may have relied on hindsight analysis to modify the teachings of KARL and/or SKOVMAND. Because neither KARL nor SKOVMAND teach or suggest the combination of at least one non-pyrethroid insecticide, and at least one insect repellent, at lower than lethal concentration (LC100) of insecticide, teaching or suggestion can only be improperly obtained from the present specification.

As shown in Table I of the present application, the concentration of propoxur (7.28 mg/m²) selected in the composition to be tested on *Ae. aegypti* is respectively 137 to 274 fold lower than the concentration recommended by the WHOPES

(World Health Organization Pesticide Scheme) to be used on dwelling walls to control mosquito vector population (see, http://www.who.int/whopes/Insecticides_IRS_Malaria_ok.pdf).

Moreover, the DEET concentration (364 mg/m^2) is 11 to 220 fold lower than a cosmetic formulation concentrated at 5% to 100% (see, Pennetier et al., Am. J. Trop. Med. Hyg., 72(6), 2005, pp. 739-744, copy enclosed in Appendix).

Moreover, DEET, which itself has no KD effect or mortality effect, when combined with propoxur, is effective as deltamethrin. This unexpected result allows reproduction of the characteristics of the pyrethroid insecticides.

Furthermore, these results are also valid on mosquito strains resistant to pyrethroids (see, Table 2). In example 1, the propoxur concentration is reduced to 3.64 mg/m^2 for the resistant strain. DEET concentration remains at 364 mg/m^2 . The composition kills 95% of the mosquitoes compared to only 8% for deltamethrin. One of ordinary skill in the art would not have predicted this result.

For all of these reasons, KARL and SKOVMAND, alone or in combination, do not teach or suggest, and would not have rendered obvious, the products and insecticide compositions of the present claims. Also, the IRD reference does not rightfully qualify as prior art. Accordingly, Applicants request reconsideration and withdrawal of the rejection.

CLAIM 15

Applicants respectfully note that the Office Action does not address claim 15. Therefore the status of claim 15 is presently not clear. In view of the above remarks, however, a method for preparing mosquito nets or clothes impregnated with insecticide, comprising impregnating the mosquito net or clothes with the composition as defined in claim 2, is not taught or suggested by the cited references.

CONCLUSION

Entry of the above amendments is earnestly solicited. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future submissions, to charge any deficiency or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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APPENDIX:

The Appendix includes the following items:

- IRD, Annual Report 2007
- Pennetier et al., Malaria Journal (2007), 6:38
- Declaration of Marie-Noelle Favier
- IRD website as available on March 14, 2011
- Insecticides_IRS_Malaria_ok.pdf
- Pennetier et al., Am. J. Trop. Med. Hyg., 72(6), 2005, pp. 739-744